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BOTANICAL NOTES.

ANOTHER FERN BOOK.

UNDER the simple title of 'Ferns' Dr. C. E. Waters, of Baltimore, has added another book of 362 large octavo pages to the quite creditable list of popular treatises on the ferns of the northeastern United States, and it has been given fitting form by the publishers, Holt and Company, of New York City. The work is intended for amateurs, and is in fact a popular manual based on analytical keys which can be used for the identification of ferns whether fruiting or not. This is accomplished by having, in addition to the usual key based on the fructification, another which makes use of characters derived from the stalks alone. In this the number and shape of the fibro-vascular bundles are of primary importance, but to these are added other characters, as the size, color, ridges, grooves, etc., of the surface of the stalks. For the bundle characters good diagrams are used, and throughout the work there are about two hundred admirable 'half-tone' reproductions of photographs, which must prove very helpful to the student, whether amateur or professional. The keys refer to fuller descriptions of each species, and these are all that one could wish in a book of this kind. There is first a short, somewhat technical description (in smaller type), and this is followed by a popular account which runs on with a charming freedom from conventionality. There is no attempt to treat every species in the same manner; on the contrary, the author seems purposely to have varied his treatment, often making an apt quotation of a stanza or two from some poem.

The nomenclature is nearly that of a decade or two ago, but modern synonyms are given sufficiently to make the book usable by those who have access only to very recent manuals. It is of little moment in a book of this kind what nomenclature is used, and for this reason the omission of the authority for the species is of no consequence. It is sufficient to say that the author knows ferns so well that his pronouncement may well be accepted by all amateur students of the ferns. The book should have a wide circulation among the large number of people who love ferns and

want to know something about them. It will also be found to be a very useful book in the library of the professional botanist.

ST. LOUIS AND THE BOTANISTS.

IN a few weeks the botanists of the country will have the opportunity of visiting St. Louis in order to attend the meetings of the botanical section (G) of the American Association for the Advancement of Science, and the affiliated societies. The botanical attractions are unusually great in St. Louis. The Missouri Botanical Garden, with its wealth of living plants in the extensive hothouses, and the out-of-door plantations covering many acres of ground, will interest every botanist who visits it. Then there is the garden herbarium, one of the largest in America, and very rich in type specimens, and also the collections of botanical works constituting the large garden library. Here are the specimens and books which Dr. George Engelmann studied and used, and here are the rooms and buildings in which he worked. To the younger generation of botanists these associations should be unusually attractive, for it is helpful to see where and with what means those who preceded us have done their work. There should be a full attendance of botanists at these meetings.

THE ECONOMIC PLANTS OF PORTO RICO.

SEVERAL years ago O. F. Cook and G. N. Collins were sent by the United States Department of Agriculture to Porto Rico to make investigations in regard to the agriculture of the island. One result of their work has been the preparation of a thick pamphlet of somewhat more than two hundred octavo pages consisting of an annotated list of Porto Rican plants of economic importance. It appears as one of the 'Contributions from the United States National Herbarium' (Vol. VIII., part 2), under the supervision of the curator of botany, Mr. F. V. Coville.

In the short introduction reference is made to the books on the plants of the island, in which the authors say that "the botany of Porto Rico is far from complete, and very

little of it has been written in the English language. * * * But two authors have attempted a connected sketch of the Porto Rican flora, and the efforts of these not only remain incomplete in that they do not cover the entire series of families of flowering plants, but the lists are also partial and local, as the writers themselves realized. The first of these sketches was that of Don Domingo Bello y Espinosa ('Apuntes para la flora de Puerto-Rico,' 1881-1883). * * * The second of these sketches and the most important contribution to the botany of Porto Rico is the Flora projected by Dr. A. Stahl, of Bayamon, but unfortunately only partially published ('Estudios para la flora de Puerto-Rico,' 1884-1888). * * * In spite of public indifference and official animosity six parts of the flora were issued at the expense of the author, having been prepared in the intervals of his professional life as a physician. Publication ceased in 1888, and Dr. Stahl no longer hopes to continue the work." Two other titles are given, viz., 'Diccionario botanico de los nombres vulgares cubanos y Puerto-Riquenos,' by Manuel Gomez de la Maza, and 'El medico botanico criollo,' by Rene de Grosourdy.

The catalogue proper consists of an alphabetical list of names, common and scientific, with descriptive notes and cross references. Here the reader finds many interesting facts about tropical and semitropical plants which are or might be grown in Porto Rico and other West Indian islands. One is struck, after reading a few pages, with the fact that there is much to be done on this island possession of ours in order to develop its use of the plants which may be grown there with profit. Coffee appears to be the most important of the cultivated plants, and yet we learn that "the most careless and wasteful methods are practised in the culture of this important crop. No attention is paid to the selection of seedlings, most of the new plants being secured from seeds that have germinated under the trees in the old plantations. It is estimated that by proper methods of cultivation the yield from the land now devoted to coffee could be doubled or tripled." Similar statements are made with reference to most of the

crops of the island. Evidently there is a field of work here for the United States Department of Agriculture, and this volume is an indication that it is entering upon it with energy and ability.

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THE CARNEGIE INSTITUTION.

THE newspaper reports in regard to the second annual meeting of the trustees of the Carnegie Institution, held in Washington on December 9, read as follows:

"There were two sessions, with a dinner following. The report submitted on the proceedings of the last year was supplemented by explanatory statements by Dr. Gilman, the president of the institution, and by Dr. Walcott, the secretary. The report on the year's operations showed sixty-six grants made by the executive committee for scientific research, involving an aggregate of \$150,000, and recipients representing every part of the United States and the smaller colleges as well as the large universities, observatories and laboratories. Twenty-five research assistants were appointed. These sums are exclusive of administrative and incidental expenses of the institution. The beneficiaries are given the option of making public the nature of these grants. Action on request for 1,022 grants, involving an allowance of \$3,000,000 a year, was indefinitely postponed. Arrangements have been made for publication at an early day of eleven scientific papers, most of them making large and costly volumes. Among the subjects now under consideration by the institution in connection with grants are a solar observatory; southern observatory; geophysical laboratory; Transcaspian exploration and archeological exploration; exploration in the south Pacific, establishment of biological experiment laboratories and international magnetic researches.

"The morning session was devoted mostly to a discussion of several large projects. No conclusion was announced. The trustees authorized an aggregate expenditure of \$373,000 in grants for scientific researches and \$40,000 for publications during the ensuing year.

"It is said that Mr. Carnegie made a brief address, in which he commended the work already done and talked of the aim of the institution to give liberal encouragement, in cooperation with other institutions, to investigation, research and discovery; to provide buildings, laboratories,